II.—*Note on the genus* Cypridina, *M. Edwards; with a description of two new species.* By W. Baird, M.D., F.L.S. &c.

[With two Plates.]

The genus *Cypridina* was founded by M. Edwards in 1838, in a note to the second edition of Lamarck's 'Hist. Nat. An. sans Vertèbres,' and was afterwards more fully detailed in the third vol. of his 'Hist. Nat. des Crustacées.' The animal resembles a good deal in its general form and structure that of the genus *Cypris*. From his observations however it appears to have two eyes, distinct from each other; two pairs of antennæ, both pediform; one pair of natatory feet, and a peculiar organ apparently for supporting the ova, similar in purpose to, but differing in structure from, the second pair of feet in the *Cypris*. In 1840 M. Philippi published a paper in the sixth vol. of the 'Ann. and Mag. Nat. Hist.' in which he describes and figures a small Entomostracan allied to the genus *Cypris*, and to which he gives the name of *Asterope*. In some of its characters as given by him, it differs from the *Cypridina* of Edwards,—points of difference which he particularly mentions,—but in others it resembles it very closely. I have very lately had opportunities of examining two species of Entomostraca which I can only refer to the genus *Cypridina*, and which, upon dissection, I found in several of its parts to partake of the nature and form of that genus, and in other parts to resemble *Asterope*. From this mixture of the characters of the two genera, and taking into consideration the minuteness of the parts examined, and the different appearance these same parts assume in different positions under different microscopes and with different observers, I am inclined to believe these two genera to be identical. Waiting however till better opportunities occur for examining these little creatures, I shall content myself at present with describing two new species that have lately occurred to me.

Sp. 1st. *Cypridina MacAndrei*. Pl. VI. *B*. figs. 1, 2. Shell of an oval shape; the two extremities prolonged into sharp points; that of upper extremity curved and projecting forwards and a little upwards, that of inferior extremity projecting a little backwards. The whole shell is dotted over with small spots. On anterior edge near the upper extremity the shell is deeply notched. It is smooth and of a light colour (dry).

Several specimens of this little animal were placed in my hands by Mr. M'Andrew, who dredged them in deep water off the Shetland Isles. They were preserved dry, the whole animal being of the size of a small pin's head, and the shell being tolerably hard. In consequence of having been kept thus dry for a considerable time, the animal had become so shrunk that it was with consi-

derable difficulty I succeeded in dissecting it. For the accompanying sketches of this species I am indebted to the pencil of Mr. Charles Ager.

The eyes I did not succeed in making out. The first pair of antennæ (Pl. VI. fig. 3) are large and pediform: they consist each of four articulations. The first or basilar joint is stout and of a considerable size; the second is nearly equally large; the third is short, about half the size, and the last is more slender and terminated by several strong setæ. From the junction of the third and fourth joints issues a bundle of long slender setæ as in *Cypris*, and the second articulation is beset on both upper and under edge with numerous strong setæ also. The organ which he calls the natatory foot (fig. 4) is however a very remarkable one: it consists of a very large, fleshy, round basilar joint, from which issue two branches separate from each other and differing in size and structure. The superior is much the larger of the two, and consists of one long and stout joint and six short ones, from the base of each of which issues a long hair. The inferior branch is much smaller and consists of two nearly equal joints, the lower terminating in two short claws. According to the figure given by M. Edwards, this pair of feet consists of only one branch instead of two. The mandible I did not succeed in seeing; but the first pair of jaws appeared to be very like that organ as represented by M. Edwards. The second pair of antennæ presented the appearance given in fig. 5, but the parts were too rigid to enable me to describe it distinctly. On the posterior portion of the animal there was another organ, which is described by M. Edwards in the *Cypridina* as a slender, cylindrical, filiform and twisted body which supports the ova. In this species it appeared a cylindrical body (fig. 6) composed of a very great number of small joints, of a twisted form, and giving off from each side several pretty long setæ which appear numerously jointed also and furnished at their extremities with sharp spines. It resembles more the same organ as described in the *Asterope* by Philippi than that in the *Cypridina* of Edwards. The abdomen is terminated by a double caudal plate (Pl. VI. fig. 7), broad, flat, and armed with nine spines; six of which are very strong and serrated on their under edge. The first is the longest and they gradually become shorter as they descend, the three last being much smaller than the others, not serrated on their under edges, but furnished with a tuft of short setæ at their extremities. This caudal plate appears to be a simple continuance of the abdomen, and not articulated with it as in the tail of *Cypridina* figured by M. Edwards, and in this particular resembles much more nearly that organ as represented by Philippi in his *Asterope*.

Sp. 2nd. *Cypridina Adamsi*. Pl. VII. fig. 1. Shell of the size

of a small pea, of an oval form and very convex, rounded at the base and somewhat pointed at its apex, under which anteriorly it is deeply notched. The shell is smooth, shining, and of a pale yellow or cream colour (dry).

Two or three specimens were brought home by Mr. Arthur Adams, Assistant Surgeon Royal Navy, attached to H.M. Ship 'Samarang,' who dredged them during the late voyage of that vessel in the South Atlantic Ocean. They had as well as the preceding species been preserved dry, and from the long time they had been kept so, it was almost impossible to dissect the animal. However by steeping them in spirits of wine for some time, I succeeded in obtaining the body of the animal sufficiently entire to be able to ascertain the genus. The anterior antenna (fig. 2) consists, as in the preceding species, of four joints, the three last having numerous pretty long plumose setæ springing from the upper edge, and the last being terminated by a tuft of similar but longer setæ. The natatory foot (fig. 3), as in the other species, consists also of a very large basilar joint which gives origin to two branches; the upper of which consists of one very long joint and six very short ones, from the base of each of which issues a long plumose seta. The oviferous foot (Pl. VII. fig. 4) resembles very much that of the preceding species, being cylindrical, and beset at its upper extremity with spines. The jaws and tail resembled very much the same organs in *C. MacAndrei*, but the body of the animal was too much decomposed to allow me to see them sufficiently accurately to be able to figure them.

Godeheu de Riville, in his paper on the Luminosity of the Sea, published in 1760 in the third vol. of the 'Mémoires pour les Savans Etrangers,' describes a small Entomostracan which must belong to this genus. Sailing along the coast of Malabar, when in 8° 47′ N. lat., and in 73° E. longitude of Paris, the sea was observed to be unusually and most brilliantly luminous. Having had his attention previously directed to this interesting phænomenon, Riville determined to ascertain the cause. The water all round the vessel and to a considerable distance from it was white as snow, and in the wake of the ship innumerable star-like bodies of a still brighter lustre sparkled on the surface of the agitated surf. He had some water drawn up from alongside, and he then observed numerous bright sparkling spots in the bucket in which it was contained. Pouring it out upon a piece of linen, numbers of small bodies still giving out light were observed adhering to the surface of the cloth. They were alive, and resembled, he says, "those small insects called in France *Puces d'eau*." The body of the animal was contained in a little shell which was transparent, and resembled in form an almond cleft on one side and

notched at the superior part. The animal, besides several organs which he shortly describes, had, he remarks, "a large foot armed with a toothed talon resembling that of the *puce d'eau*, and destined for the same uses, being a kind of rudder which enables the insect to move about with swiftness." An officer on board made several sketches of this interesting little creature, and from these and the above description I have little doubt of its belonging to this genus*. Riville does not mention the size of his insects, but from what he says they must have been much smaller than the species above described. Amongst the very interesting drawings of Crustacea made by Mr. Adams during the voyage of the 'Samarang', there is one which appears to be another species of this genus. It was taken in the Sooloo Sea. Mr. Adams describes it as of a bluish colour, semi-opake, two lines in diameter, and very quick in its motions, darting about with great velocity and constantly revolving. The figure however is not sufficiently detailed to enable me to describe the species, and no specimens were brought home. Mr. Adams observed both of these species to be highly luminous.

British Museum, October 1847.

Postscript.

Since the above was in type I have had an opportunity of examining another specimen of the *Cypridina Adamsi*, kindly placed in my hands by Mr. Adams. Though equally dry as the other specimens I had previously received from the same gentleman, the body of the animal was almost entire, and I was thus enabled to make out the anatomy more satisfactorily. The eyes are two in number; each placed upon a conical lengthened peduncle, which takes its origin near the base of the first pair of the pediform antennæ. From the state of the animal I could not distinctly make out the construction of the organ, but apparently it was composed of numerous crystalline lenses. The oviferous feet, placed on each side of the body and directed upwards, consist each of a long cylindrical body, club-shaped, composed of a great number of short articulations, and furnished with many stout barbed spines arising from each side. The articulations are completely circular, and with a high power can be discerned running round the body of the foot like a bell-wire (fig. 4 *a*). The spines on its edges are composed of a long basal joint, smooth for three-fourths of its entire length, and five or six very short articulations at the apex, each armed with a short awn-like seta on either side (fig. 4 *b*). The second pair of antennæ (fig. 5) are each formed of three joints. The basal is stout and fleshy, and has at its posterior extremity an appendage consisting of a

* Müller however quotes it as resembling his *Lynceus brachyurus*!

semicircular plate, armed at its edge with numerous slender setæ. The second is shorter and has several long plumose hairs springing from its inferior edge, and three or four not plumose from the upper surface. The terminal joint gives off at its apex four stout setæ, and numerous others more slender from its upper edge. The first pair of jaws (fig. 6) consists each of a semicircular plate furnished on its convex margin with a great number of long beautifully plumose filaments, and has attached to one extremity two other plates, each provided with numerous very slender setæ on their edges. The second pair of jaws (fig. 7) consists each of a semicircular plate furnished on its inner margin with numerous long slender setæ disposed like the teeth of a comb. At one end it gives off a stout branch like a finger, which is terminated by seven or eight long curved spines, and at the other sends off seven or eight long stout plumose setæ. The organs represented at fig. 8 are perhaps the mandibles, but as I did not observe their exact situation in the animal, I cannot with certainty refer them to those organs. The part represented (fig. 9) is unique, but I do not know its nature or use.

EXPLANATION OF PLATES VI. B. and VII.

PLATE VI. B. *Fig.* 1. *C. MacAndrei*, highly magnified.
Fig. 2. The outer shell removed to show the animal.
Fig. 3. Anterior antenna.
Fig. 4. Natatory foot.
Fig. 5. Second pair of antennæ.
Fig. 6. Oviferous foot.
Fig. 7. Tail.

PLATE VII. *Fig.* 1. *C. Adamsi*, slightly magnified.
Fig. 2. Anterior antenna.
Fig. 3. Natatory foot.
Fig. 4. Oviferous foot: *a.* portion highly magnified; *b.* one of the spines highly magnified.
Fig. 5. Second pair of antennæ.
Fig. 6. First pair of jaws.
Fig. 7. Second pair of jaws.
Fig. 8. Mandibles?
Fig. 9. ——?

III.—*Observations on the Development of the* Medusæ. By JOHN REID, M.D., Fellow of the Royal College of Physicians of Edinburgh, and Chandos Professor of Anatomy and Medicine in the University of St. Andrews*.

[With two Plates.]

THE following observations were made upon three colonies of the larvæ of a *Medusa*. One of these was procured on the 15th of

* These observations were laid before the Literary and Philosophical Society of St. Andrews at the Meetings of the 4th of May 1846 and the 5th of April 1847, and abstracts of them were printed in the 'Transactions' of the Society, and reprinted in Nos. 118 and 131 of the first series of this Journal.